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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,666

09/12/2003

Paul B. Aamodt

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MEDTRONIC, INC.  
710 MEDTRONIC PARKWAY NE  
MINNEAPOLIS, MN 55432-9924

EXAMINER

LEE, CYNTHIA K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

04/29/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/661,666

**Applicant(s)**

AAMODT, PAUL B.

**Examiner**

CYNTHIA LEE

**Art Unit**

1795

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) 4, 10-15 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Election/Restrictions***

Newly submitted claims 17-20 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the electrochemical cell of claim 17 does not require the separator subassembly to envelope the anode subassembly, as required in claim 1.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 17-20 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Further, claims 14 and 15 are withdrawn from consideration because they are dependent on a withdrawn claim 13. As pointed out by the Applicant in the Response submitted on 2/15/2008, claims 13-15 are directly or indirectly dependent upon claim 1, and therefore can be further considered upon the allowance of the independent claim.

***Response to Amendment***

This Office Action is responsive to the amendment filed on 2/15/2008. Claims 17-20 are newly added. Claims 1-15 and 17-20 are pending. Claims 4, 10-13, 17-20 are withdrawn from further consideration as being drawn to a non-elected invention. Applicant's arguments have been considered, but are not persuasive. Thus, claims 1-3, 5-9 are non-finally rejected for reasons of record.

***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelm (US 5486215) in view of Spillman (US 5631102).

Kelm discloses a separator subassembly for a coiled electrode-type electrochemical cell comprising an elongated separator layer. Kelm discloses that the anode assembly comprises an alkali metal, preferably lithium metal, and the current collector comprises a corrosion-resistant metal, preferably nickel, copper or an alloy of nickel and copper (4:20-25 and 35-40) (instant claims 8 and 9). Kelm discloses that the separator can be made of microporous polyolefin (i.e. polyethylene or polypropylene) separator material such as Celgard (5:1-5) (applicant's dielectric material). The anode material depletes during cell discharge (see [0015] of the instant Specification).

Kelm disclose that the separator assembly covers the anode assembly and forms a pocket around the anode assembly since it folds over (applicant's longitudinal crease, instant claim 5) at the top edge and conforms to the anode assembly until it reaches the bottom edge where it is joined to itself at a seal. Slits can be cut in the separator to allow the connector tabs to project through the separator (4:60-65) (instant claims 2, 6, 15).

Kelm does not disclose a spacer layer. However, Spillman teaches a separator insert (40 in fig 1) (applicant's spacer layer) in addition to the main separator in an

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electrochemical cell. A preferred material for the separator insert is a woven or nonwoven fluoropolymer material (applicant's dielectric material). This polymeric material is chemically inert to the components used in alkali metal cells, is corrosion resistant and does not decompose at normal battery temperatures. Preferably, the separator insert covers at least each side of the cathode means in a spirally wound electrode stack and extends less than one-half the total length thereof. The separator insert covers the leading edge and at least one side of one of the electrodes in the cell. This provides additional protection against internal short circuit conditions due to tearing or puncture of the traditional separator caused by exposed electrode current collector screens (abstract, 2:30-35, 4:15-40, fig. 1). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the separator insert and cover the current collector as taught by Spillman to Kelm's anode or the cathode for the benefit of preventing short circuit caused by corrosion and puncturing at the current collector.

Spillman does not disclose that the spacer layer is relatively thicker than the separator layer (instant claim 3). However, it is obvious that in general, a thicker material is more robust and more resistant to the external forces. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the separator insert (applicant's spacer layer) thicker than the separator because Spillman teaches that the separator insert is useful to augment the main separator and what is important is that the separator insert provides additional protection against internal short circuit conditions due to tearing or puncture of the traditional or main

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separator by exposed electrode current collector screens (5:15-25). A thicker separator insert would provide the extra support in the leading current collector region while avoiding unnecessary mechanical enhancement in the main separator.

The combination of Kelm and Spillman would yield one spacer layer. Kelm and Spillman do not disclose that the separator assembly comprises at least two spacer layers (instant claim 7). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add multiple layers for the benefit of extra support and protection against puncture. Further, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Kelm modified by Spillman teaches that the spacer layer leaves a leading end of the anode subassembly exposed because the outer edge of the spiral can be considered the leading edge.

Kelm modified by Spillman meets the limitation that “the spacer layer covers a single side of the anode subassembly” because the claim is written in open language.

### ***Response to Arguments***

Applicant's arguments filed 2/15/2008 have been fully considered but they are not persuasive.

*Applicant argues that the separator insert of Spillman is not “joined” to the separator extending over the anode and appears to be a second separator extending over the cathode (emphasis in original).*

The Examiner remains unpersuaded. It is noted that the separator insert of Spillman is "joined" to the separator because they are in direct contact with each other. Refer to 40 and 28 of See fig. 2 and 3. It is noted that "joined" does not require Spillman's spacer layer to be enveloped inside the separator.

*Applicant argues that since separator of Kelm is pressed into the alkali metal of the anode assembly, it would not be obvious to dispose the separator insert of Spillman "inside" the separator of Kelm (emphasis in original).*

The Examiner notes that it is still possible to press the current collector into the separator with the spacer present. It would merely involve rearranging the spacer in the separator subassembly, which would have been within the skill of an ordinary artisan.

Applicant's argument regarding the exposure of the leading edge of the anode subassembly is moot in view of the new interpretation of Kelm modified by Spillman.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ckl

Cynthia Lee

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795